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PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING

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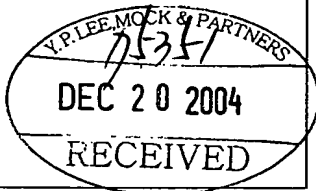
NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

To:

KIM, Eui-Bak

The Cheonghwa Bldg., 1571-18, Seocho-dong, Seocho-gu, 137-874 Seoul, Republic of Korea



Date of mailing
(day/month/year) 17 DECEMBER 2004 (17.12.2004)

Applicant's or agent's file reference
HL-20133-PCT

IMPORTANT NOTIFICATION

International application No.

PCT/KR2003/001849

International filing date (day/month/year)

08 SEPTEMBER 2003 (08.09.2003)

Priority date (day/months/year)

11 SEPTEMBER 2002 (11.09.2002)

Applicant

HANLIM PHARMACEUTICAL CO., LTD. et al

1. The applicant is hereby notified that International Preliminary Examining Authority transmits here with the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details in the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

COMMISSIONER

Telephone No. 82-42-481-5762



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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference HL-20133-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/001849	International filing date (day/month/year) 08 SEPTEMBER 2003 (08.09.2003)	Priority date (day/month/year) 11 SEPTEMBER 2002 (11.09.2002)
International Patent Classification (IPC) or national classification and IPC IPC7 C07D 211/90		
Applicant HANLIM PHARMACEUTICAL CO., LTD. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☒ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 09 MARCH 2004 (09.03.2004)	Date of completion of this report 09 DECEMBER 2004 (09.12.2004)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer KIM, Hee Jin Telephone No. 82-42-481-5412 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/001849

I. Basis of the report

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001849

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-11	YES
	Claims		NO
Inventive step (IS)	Claims	1-11	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1 : WO 95/25722

1. Novelty and Inventive Step

The present invention relates to a process for the preparation of (S)-amlodipine from (R,S)-amlodipine using L-tartaric acid and synthetic intermediates for the preparation of (S)-amlodipine. More specifically, the process of the present invention comprises (i) reacting (R,S)-amlodipine with (L)-tartaric acid in dimethyl sulfoxide, (ii) filtering off the resulting precipitate of step (i), (iii) precipitating (S)-amlodipine-hemi-L-tartarate-DMSO-solvate by adding methylene chloride to the filtrate of step (ii), (iv) optionally forming (S)-amlodipine-hemi-L-tartarate-monohydrate by adding an alcohol to (S)-amlodipine-hemi-L-tartarate-DMSO-solvate obtained in step(iii), (v) treating with a base (S)-amlodipine-hemi-L-tartarate-DMSO-solvate obtained in step(iii) or (S)-amlodipine-hemi-L-tartarate-monohydrate obtained in step (iv).

D1, which is considered to represent the most relevant state of the art, discloses a process for the preparation of (R)- and (S)-isomers of amlodipine from the mixture thereof.

Compared with the present invention, they are the same in that (S)-amlodipine isomer is prepared from the racemic mixture by using tartaric acid as a resolving agent. However, they are different in that the process of D1 employs D-tartaric acid(see example 1,9), while L-tartaric acid which is much cheaper than D-tartaric acid is used in the present invention. Therefore, the process of the present invention is very favorable for industrial-scale mass production. Moreover, it is not obvious to a skilled person in the art to use only L-tartaric acid for the resolution of (S)-amlodipine. Therefore, the present invention is considered to be novel and to involve an inventive step.

2. Industrial Applicability

The present invention is considered to be industrially applicable.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001849

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

<u>Application No. Patent No.</u>	<u>Publication date (day/month/year)</u>	<u>Filing date (day/month/year)</u>	<u>Priority date (valid claim) (day/month/year)</u>
E,X US 2003/0176706 A1	18/09/2003	18/03/2002	

Document US 2003/0176796 A1 was filed on 18/03/2002 and published on 18/09/2003, i.e. filed prior to the priority date but published after the international filing date.

2. Non-written disclosures (Rule 70.9)

<u>Kind of non-written disclosure</u>	<u>Date of non-written disclosure (day/month/year)</u>	<u>Date of written disclosure referring to non-written disclosure (day/month/year)</u>